Feb. 13, 1934. A. A. SMIDT 1,946,716

WINDOW PANE FASTENER AND THE LIKE

Filed March 17, 1933

Fig. 1.

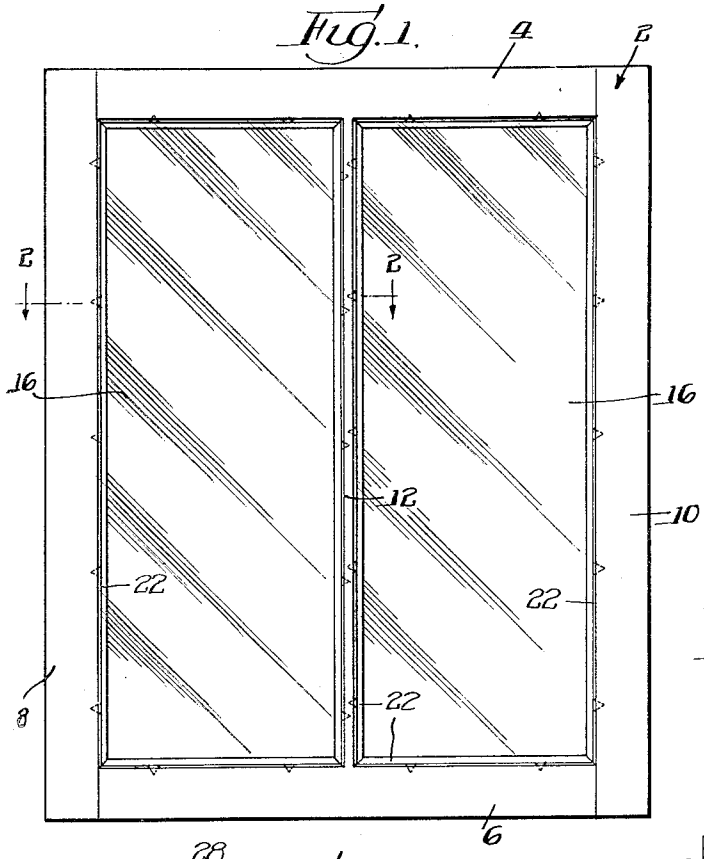


Fig. 2.

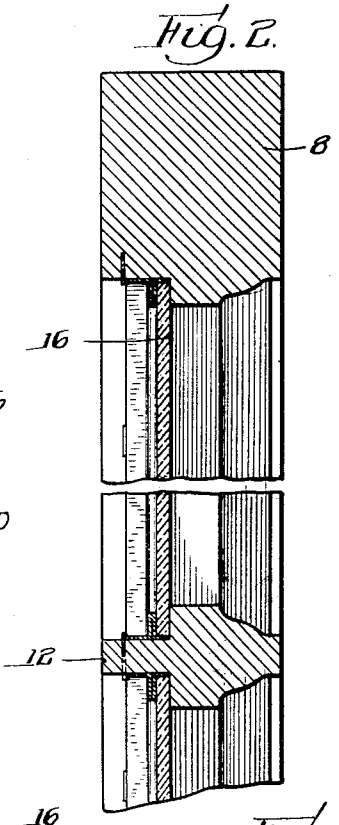


Fig. 3.

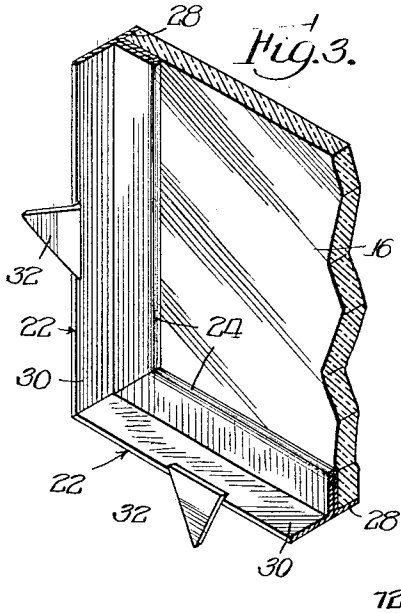


Fig. 5.

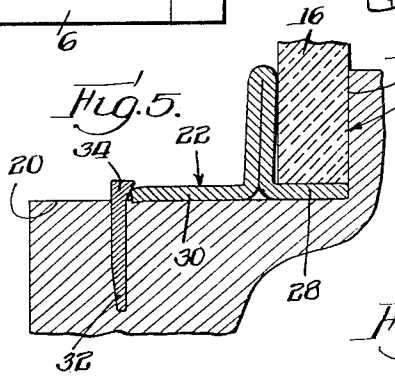


Fig. 4.

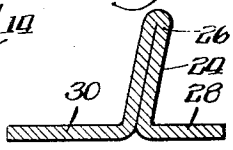


Fig. 6.

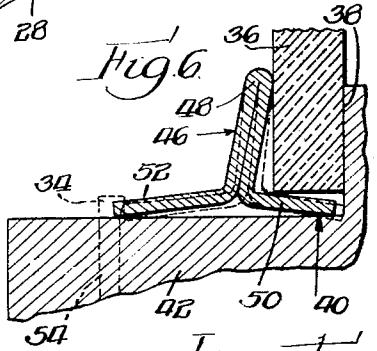
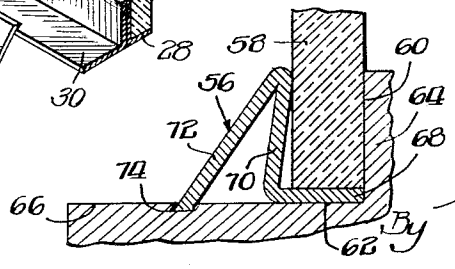


Fig. 7.



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UNITED STATES PATENT OFFICE

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WINDOW PANE FASTENER AND THE LIKE

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17 Claims. (Cl. 20—56.4)

The present invention relates to glass fastening means, and more in particular to novel means for holding panes of glass in position within the rabbet of a window sash.

Among the objects of the present invention is to provide a novel fastening means for panes of glass which may be easily manufactured and fabricated at small cost and readily placed in position.

Another object of the present invention is to provide a novel means for holding a pane of glass within the rabbet of a window sash, such means comprising strips of material adapted to tightly engage the pane of glass and to prevent movement thereof within the rabbet.

The present invention comprehends the idea of providing novel means in the form of one or more strips for fastening a pane of glass within a window sash, such means being adapted to tightly engage the glass adjacent the edges thereof, and to hold the broken pieces of glass in position to prevent shatter, even though the pane of glass becomes broken.

Another object within the purview of the present invention is to provide novel means in the form of one or more strips for holding a pane of glass within a window sash, such means serving to provide a weather strip and to effectively hold the pane of glass in position, even though a force be applied to the glass from the inside of the window sash, as for example, in cleaning the same.

Heretofore, some plastic material such as putty, or the like, has been used for sealing the joint between a pane of glass and the sash in which the same is mounted. This putty is subject to contraction upon hardening because of variations in temperature, and becomes cracked. These cracks in the body of the putty itself, or the joints formed when the putty pulls away from the frame, permits seepage of water, which tends to cause decay of the window sash. Furthermore, putty is subject to crumbling and cracking, and when cracks have opened up and pieces of putty have fallen out of place, the window sash cannot be effectively repaired by replacement of the lost portions of putty. It is then necessary to completely scrape the window frame and remove all traces of old putty and re-putty the entire frame. This is costly, and windows constructed in this way require constant attention to keep them in first-class condition.

It is therefore an object of the present invention to provide novel fastening means adapted to provide a tight joint between panes of glass and the window sash without the use of putty or the like, such fastening means forming a tight joint with the glass, as well as the window frame, thereby preventing entrance of moisture or water, which would cause decay of the window sash.

Still another object of the present invention is to provide a novel fastening means for holding a pane of glass in a window sash, such means further providing a seat for the pane of glass. More particularly, the invention includes the idea of providing a fastening means having a spring glass engaging portion and a spring seat portion for this pane of glass, or both of these features of construction.

Still another object of the present invention is to provide means of novel construction for holding these fastening strips in position. Such means in the present embodiment comprehends brads adapted to be driven into a wooden sash member and having an offset portion engaging a portion of these fastening strips in wedging relation to urge these fastening strips into a tight engagement with a pane of glass.

Other objects, features, capabilities and advantages are comprehended by the invention, as will later appear and as are inherently possessed thereby.

Referring to the drawing:

Figure 1 is a view in elevation of a window sash embodying the invention;

Figure 2 is a fragmentary view in cross-section taken in the plane represented by line 2—2 of Figure 1 of the drawing;

Figure 3 is a fragmentary view in perspective of a corner of a pane of glass with fastening means made in accordance with the present invention shown in association therewith;

Figure 4 is an enlarged view in cross-section of a fastening strip made in accordance with the present invention;

Figure 5 is a view in cross-section of the fastening strip as shown in Figure 4 of the drawing, disclosing the same in operative position in a window sash;

Figure 6 is a view in cross-section similar to Figure 5 of the drawing, disclosing an alternative construction for the fastening strip; and

Figure 7 is a view in cross-section similar to Figures 5 and 6 of the drawing, disclosing still another fastening strip made in accordance with the present invention.

Referring now more in detail to the drawing, a fastening means made in accordance with the present invention is shown in connection with a window sash 2 comprising upper, lower and side

frame members 4, 6, 8 and 10, respectively, and an intermediate frame member 12 extending between the upper and lower frame members 4 and 6. These frame members are suitably connected together to provide a rigid sash member, all in accordance with the usual practice in the art, these frame members being formed with a rabbet 14, as disclosed in Figure 5 of the drawing, to receive panes of glass 16. As clearly shown in Figure 5 of the drawing, the rabbet 14 is provied with a shoulder 18 and a wall portion 20 disposed substantially normal thereto, the pane of glass 16 being in engagement with the shoulder portion 18.

In order to hold and fasten these panes of glass 16 in position and in engaging relation with the shoulders 18, novel means, generally referred to as 22, is provided. Such means in the embodiment disclosed in Figures 4 and 5 comprises fastening strips 24 which may be cut to the proper length to fit the openings formed by the rabbet of the frame members and made from some suitable spring material. These fastening strips comprise an intermediate portion 26 folded upon itself to provide an intermediate glass engaging flange, one edge of these fastening strips being bent laterally of the intermediate flange 26 to provide the glass seating portion 28, while the other free end of the strips 24 is bent laterally and substantially in the plane of the portion 28 to provide a portion 30 engageable with the wall 20 of the frame members.

As disclosed in Figure 4 of the drawing, the intermediate flange 26 is at an acute angle with the glass seating portion 28. After a pane of glass has been introduced into position whereby the edges thereof engage with the shoulders 18 of the frame members, these fastening strips 24 may be inserted in place whereby the portion 28 is disposed between an edge of the glass and the wall 20. After a strip has been laid in that manner, brads 32 may be driven into the frame member adjacent the outer edge of the sash engaging portion 30. These brads are substantially V-shaped as shown to provide a pointed edge for driving purposes and the other edge thereof is formed with a lateral offset 34 serving as a wedge upon engagement with the outer edge of the portion or flange 30 for forcing the flange 26 into a tight relation with the pane of glass 16, this intermediate glass engaging flange 26 being resilient and thus being adapted to resiliently hold the pane of glass 16 in engagement with the shoulder 18.

As clearly disclosed in Figure 5 of the drawing, the outer edge of the flange or wall engaging portion 20 is embedded slightly within the frame member, because of the offset portion 34 of the brads 32 engaging therewith and forcing the same slightly into the frame member. This provides a water-tight joint between the frame member and the fastening member 24 to prevent entrance of water or moisture therebetween at this point. The intermediate flange 26 is of resilient construction and is adapted to provide a tight joint with the pane of glass 16, the resiliency of this intermediate flange providing this tight joint even though there may be variations in the thickness of the pane of glass from point to point along the edges thereof. The offset portion 34 of these brads likewise serves to force the intermediate flange 26 into tight engagement with the pane of glass 16, even though there may be these variations in the width of the pane of glass from one end to the other.

In Figure 6 of the drawing is disclosed another construction for a fastening strip made in accordance with the present invention. In this embodiment, the pane of glass 36 is in engagement with the shoulder portion 38 of a rabbet 40 formed in a frame member 42, this rabbet being further provided with a wall portion 44 disposed substantially normal to the shoulder portion 38. The fastening strip 46 of this embodiment is adapted to hold the pane of glass 36 in the frame member 42. This fastening strip 46 is similar in construction to the fastening strip 24 of the embodiment shown in Figures 4 and 5, and has an intermediate portion 48 folded upon itself to provide a flange or glass engaging portion, one of the edges of the strip being bent to provide a glass seating portion 50 and a wall engaging portion 52. In the present embodiment the intermediate flange 48 is disposed at substantially an acute angle to the glass seating portion 50, and the flanges 50 and 52 are in this instance angularly disposed in relation to one another. The fastening strip 46 is inserted in position as disclosed in this figure, wherein the glass seating portion 50 is disposed between the edge of the pane of glass 36, and the wall 44. The flange 48 is adapted to engage the pane of glass 36, and when brads 54 are driven into the frame member 42 adjacent the outer edge of the wall engaging portion 52, the fastening member 46 is forced by the offset 34 of these brads to assume the position as disclosed in dotted lines in this figure. Because of the angular disposition of the flanges 50 and 52, these flanges form a resilient seat for the pane of glass 36, thereby effectively preventing movement thereof within the rabbet 40. These brads likewise force the intermediate flange 48 into tight engagement with the pane of glass 36 and provides a resilient securing member adapted to conform to the variations in thickness of the pane of glass. As shown in Figure 6 of the drawing, the wall engaging portion 52 is slightly embedded in the frame member 42, thereby providing a tight joint between the fastening member 46 and the sash.

In Figure 7 of the drawing is disclosed still a further construction for a fastening means made in accordance with the present invention. In this embodiment, a fastening strip 56 is provided for holding a pane of glass 58 in association with the shoulder 60 of a rabbet 62 provided in a frame member 64, this rabbet 62 being further provided with a wall 66 substantially normal to the shoulder 60. The fastening strip 56 comprises a piece of material having one edge thereof bent as disclosed to form a glass seating portion 68 adapted to be disposed between the edge of the glass 58 and the wall 66, this piece of material having an intermediate portion 70 angularly disposed in relation to the flange 68 and being adapted to contact and engage the pane of glass 58 as shown. The other edge of the piece of material is bent to provide a wall engaging portion 72, this portion extending beyond the plane of the flange 68 and being received in a groove 74 formed in the wall 66. The fastening strip is formed of spring material so that the wall engaging portion 72 may be easily forced into a position whereby the edge thereof snaps into the groove 74, such means being provided to form a tight joint between the fastening strip 56 and the sash member 64 and to urge the intermediate portion 70 into a tight engagement with the pane of glass 58.

In the embodiments disclosed in Figures 5, 6 and 7, the rabbeted portion of the frame members may be coated with a small amount of paint

in order to provide a tight joint between the glass and the shoulder portions of the rabbet and to preserve the frame. After the fastening strips have been inserted in place and secured, the frame, as likewise the joint between the frame members and the fastening strips, may be coated with a small amount of paint in order to obtain a tight connection at these points. It will be clearly apparent that seepage of water between the fastening strips and frame members is prevented, and as a result, repair of these frame members will be unnecessary. These fastening strips provide a finished construction adapted for use under all conditions, and practically eliminate the necessity for repairing window frames.

While I have herein described and upon the drawing shown illustrative embodiments of the invention, it is to be understood that the invention is not limited thereto but may comprehend other constructions, arrangements of parts, details and features without departing from the spirit of the invention.

I claim:

1. In a window sash, the combination of frame members forming an opening, a pane of glass, and means for holding said pane of glass in said sash, said means being provided with a seat portion for said pane of glass, a glass engaging portion angularly disposed in relation to the face of said glass, and a sash engaging portion.

2. In a window sash, the combination of frame members forming an opening, a pane of glass, and means for holding said pane of glass in said sash, said means being provided with a spring seat portion for said pane of glass, a spring glass engaging portion angularly disposed in relation to the face of said glass, and a sash engaging portion.

3. In a window sash, the combination of frame members forming an opening, a pane of glass, and means for holding said pane of glass in said sash, said means being provided with a spring glass engaging portion angularly disposed in relation to the face of said glass for resiliently holding said pane of glass in place.

4. In a window sash, the combination of frame members forming an opening, a pane of glass, and means for holding said pane of glass in said sash, said means being provided with a spring glass engaging portion angularly disposed in relation to the face of said glass for resiliently holding said pane of glass in place, and means for wedging said glass engaging portion into its operative engaging position with said pane of glass.

5. In a window sash, the combination of frame members forming an opening, said frame members being rabbeted to form a shoulder adjacent said opening and a wall normal thereto, a pane of glass disposed in said opening and engaging said shoulder, and means for holding said pane of glass in said sash, said means including strips adjacent the edges of said pane of glass, said strips having a seat portion disposed between the edge of said pane of glass and said wall, a glass engaging portion spaced from said shoulder and angularly disposed in relation to the face of said glass, and a wall engaging portion.

6. In a window sash, the combination of frame members forming an opening, said frame members being rabbeted to form a shoulder adjacent said opening and a wall normal thereto, a pane of glass disposed in said opening and engaging said shoulder, and means for holding said pane of glass in said sash, said means including strips adjacent the edges of said pane of glass, said strips having a seat portion disposed between the edge of said pane of glass and said wall, a spring glass engaging portion spaced from said shoulder and angularly disposed in relation to the face of said glass, a wall engaging portion, and means secured to said sash and engaging said wall engaging portion for urging said glass engaging portion into substantially tight engagement with said pane of glass and for holding said strips in place.

7. In a window sash, the combination of frame members forming an opening, said frame members being rabbeted to form a shoulder adjacent said opening and a wall normal thereto, a pane of glass disposed in said opening and engaging said shoulder, and means for holding said pane of glass in said sash, said means including strips adjacent the edges of said pane of glass, said strips having a spring seat portion disposed between the edge of said pane of glass and said wall, a spring glass engaging portion spaced from said shoulder and angularly disposed in relation to the face of said glass, a wall engaging portion, and means secured to said sash and engaging said wall engaging portion for urging said glass engaging portion into substantially tight engagement with said pane of glass and for holding said strips in place.

8. In a window sash, the combination of a frame member having a rabbeted portion formed with a shoulder and wall substantially normal thereto, a pane of glass having an edge disposed in said portion and having one face thereof engaging said shoulder, and a strip for holding said pane of glass in said sash, said strip having a portion angularly disposed in relation to the other face of said pane of glass and engaging the same adjacent its outer edge, a seat portion engaging the edge of said pane of glass, and a wall engaging portion.

9. In a window sash, the combination of a frame member having a rabbeted portion formed with a shoulder and wall substantially normal thereto, a pane of glass having an edge disposed in said portion and having one face thereof engaging said shoulder, and a strip for holding said pane of glass in said sash, said strip having a portion angularly disposed in relation to the other face of said pane of glass and engaging the same adjacent its outer edge, a seat portion engaging the edge of said pane of glass, and a wall engaging portion, and means for urging said strip into engaging relation with said glass.

10. In a window sash, the combination of a frame member having a rabbeted portion formed with a shoulder and wall substantially normal thereto, a pane of glass having an edge disposed in said portion and having one face thereof engaging said shoulder, and a strip for holding said pane of glass in said sash, said strip having a portion angularly disposed in relation to the other face of said pane of glass and engaging the same adjacent its outer edge, a seat portion engaging the edge of said pane of glass, and a wall engaging portion, and brads driven into said frame member and having an offset portion engaging the edge of the wall engaging portion of said strip for wedging said strip into engaging position with said pane of glass.

11. In a window sash, the combination of a frame member having a rabbeted portion formed with a shoulder and wall substantially normal thereto, a pane of glass having an edge disposed

in said portion and having one face thereof engaging said shoulder, and a strip for holding said pane of glass in said sash, said strip having a resilient portion angularly disposed in relation to the other face of said pane of glass and engaging the same adjacent its outer edge, a seat portion engaging the edge of said pane of glass and a wall engaging portion.

12. In a window sash, the combination of a frame member having a rabbeted portion formed with a shoulder and wall substantially normal thereto, said wall having a groove formed therein, a pane of glass having an edge disposed in said portion and having one face thereof engaging said shoulder, and a strip for holding said pane of glass in said sash, said strip having a portion angularly disposed in relation to the other face of said pane of glass and engaging the same adjacent its outer edge, a seat portion disposed between the edge of said pane of glass and wall, and a wall engaging portion disposed in said groove.

13. A window-pane fastener comprising a strip having side flanges and an intermediate flange angularly disposed in relation thereto, the angular relation of said intermediate flange with one of said side flanges being different than with the other.

14. A window-pane fastener comprising a strip having an intermediate portion folded upon itself to provide a flange, and side flanges angularly disposed in relation thereto, the angular relation of said intermediate flange with one of said side flanges being different than with the other.

15. A window-pane fastener comprising a strip having an intermediate portion folded upon itself to provide a flange, and side flanges angularly disposed in relation thereto, one of said flanges providing a glass seating portion, said intermediate portion being disposed at an acute angle with said glass seating flange portion.

16. A window-pane fastener comprising a strip having an intermediate portion folded upon itself to provide a flange, and side flanges angularly disposed in relation thereto, said side flanges being angularly disposed with one another.

17. A window-pane fastener comprising a strip having an intermediate portion, a flange extending from one edge thereof in angular relation thereto and forming a glass seating portion, and a flange extending from the other edge of said intermediate portion in angular relation beyond the plane of said glass seating flange portion.

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